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PHYSIOLOGY OF LOCAL BLOOD GOATS

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ABSTRACT

One of the most important components of the internal environment of the animal body is blood, through which all its organs and tissues are combined into a single whole. Indicators of blood, as one of the physiological systems, are an integral indicator of the functioning of the whole organism.

Methods for determining biochemical parameters of blood.

For biochemical studies, blood samples from experimental animals of different goat ages. Blood for research from each animal was taken in two tubes. In one tube, the blood was preserved with heparin, and in the other, in order to obtain serum, it was placed in a water bath and incubated at a temperature of 35-36^0 C. After incubation, the serum was poured into clean test tubes and placed in a refrigerator bag with ice and delivered to the Karakalpak Republican Veterinary Central Laboratory.

THE MAIN PART

One of the significant properties of leukocytes is the synthesis of immune bodies, that is, special protective compounds that are immune to various infections. They can characterize the level of adaptation of animals to specific environmental conditions (Table 1).

Table 1 Resource requirements by component
Гематологические показатели козоматок (n=5, Dn =10)

Breed	Season Year	Index		
		hemoglobin g/l	erythrocytes, x 10^{12} / l	leukocytes, x 10^9 / l
Zaanenskaya	winter	84,65±1,08	9,52±0,12	8,90±0,56
	spring	87,66±1,30	9,33±0,15	8,64±0,46
	summer	89,21±0,66	9,60±0,15	8,50±0,44
	autumn	87,58±0,73	9,56±0,09	8,54±0,44
Local goats	winter	92,60±0,79	15,6±0,53	9,8±0,19
	spring	92,40±0,71	15,6±0,53	9,0±0,21
	summer	93,10±0,80	15,6±0,53	9,9±0,24
	autumn	92,90±0,80	15,6±0,53	9,8±0,19

Quantitative indicators of blood - hemoglobin, erythrocytes and leukocytes, were within the physiological norm, but varied according to the seasons of the year.

The data obtained indicate that the maximum level of hemoglobin (88.05 - 89.21 g / l), erythrocytes in experimental animals was noted in the summer, and the minimum hemoglobin

index in the winter (84.44 - 84.65 g / l), erythrocytes in the spring. In terms of blood saturation with leukocytes, the maximum indicator was noted in winter (8.90 - 10.55 10^9 / l), and the minimum in the summer (8.50 - 10.18 10^9 / l). The average blood leukocyte content per year in local goats was 10.35 10^9 /, which is 1.7 10^9 / l higher compared to goats of the Saanen breed.
The level of hemoglobin and erythrocytes in the blood indicate the intensity of the respiratory function of the body and the strengthening of metabolic processes.
The annual average hemoglobin index in the blood of Saanen goats was 87.28 g / l, which is 1.76 g / l or 2.05% higher, compared to a similar indicator in the blood of Anglo-Nubian peers.
The content of erythrocytes in the blood of goats of the Saanen breed on average for the year was 9.50 10 / l, against 9.83 10 / l in local animals. The difference in favor of local goats was 0.33- 10^{12} / l or 3.47%.
The average blood leukocyte content for the year in local goats was 10.35 10^9 / l, which is 1.7 10^9 / l higher, compared with goats of the Saanen breed.
Biochemical parameters of goat serum are presented in Table 2.
The most important biochemical indicator of blood is protein, which is part of the skin, muscles, hormones and even bone tissue. Milk protein is synthesized from blood proteins. The main components of serum proteins are albumins and globulins.
Albumins are simple proteins that are synthesized in the liver (12 g / day), utilized by the kidneys and other tissues. Approximately 60% of it is contained in the intercellular substance, and 40% in the bloodstream. In the body of animals, albumin maintains colloidal-osmotic blood pressure (80%), acid-base balance, participates in the protein buffer system, transport of hormones, amino acids, bilirubin and fatty acids, ions Ca^{2+} and Mg^{2+}. It is a depot of amino acids that are used in fasting, performs an antioxidant function.

Table 2 Resource requirements by component Biochemical parameters of serum of goat goats of Saanen and local goat breeds (n =10, Xn =20)

Index	Breed	
	Zaanenskaya	Local goats
Total protein, g/l	67,21±1,17	65,31±1,85
including albumin, %	49,23±3,19	44,30±4,13
globulins, %	50,77±3,19	55,70±4,13
Albumin-globulin coefficient	0,97	0,80
G lucose, mmol/l	3,99±0,38	3,12±0,38
Urea, mmol/l	5,79±1,00	4,61±1,03
Calcium, mmol/l	2,56±0,10	2,46±0,06
Phosphorus, mmol/l	1,85±0,09	1,91±0,27

Globulins are special amino acids that are found in the blood serum, are involved in its coagulation, transport of minerals and oxygen through the blood vessels, support immunity.
The total protein content in the blood of Goats of the Saanen breed was 67.21 g / l, which is 1.9 g / l or 2.91% higher than the total protein content in the blood of Anglo-Nubian peers. At the same time, the proportion of albumin in the blood of Saanen goats was 49.23%, against 44.30%

in goats of local animals, which may indicate a higher level of protein metabolism in Saanenese. This is confirmed by the albumin-globulin coefficient calculated by us, which in Saanen animals was 0.97 against 0.80 in Anglo-Nubian peers. At the same time, the content of globulins was higher in local goats - 55.70%, against 50.77% in Saanen animals.

Glucose is the main source of energy for the body of animals, performs structural and storage functions (glycogen). In the free state, it regulates the osmotic pressure of the blood, and when it breaks down, intermediate products are used for protein synthesis. In the cells of the body, glucose undergoes glycolysis in order to obtain energy in the form of adenosine triphosphoric acid (ATP). It is the main and universal source of energy for metabolic processes - when 1 g of glucose is oxidized, 17.6 kJ of energy is released. In general, when glucose is oxidized, more than a third of the energy used in the body of animals is released.

Analysis of this indicator obtained in our studies shows some superiority in the blood serum (0.87 mmol / l or 2.98%) of Saanen goats over their peers of the local goat. The average serum glucose value of Saanen goats was 3.99±0.38 mmol / l, against 3.12±0.38 mmol / l in Anglo-Nubian animals.

Urea is the end product of amino acid metabolism. The main organ that produces urea is the liver. Its formation occurs in the process of protein synthesis. Urea is removed from the body by the kidneys together with urine.

The remainder of this component in the blood serum allows you to judge the effectiveness of the functioning of the kidneys. Increased urine content
guilt in the blood, as a rule, indicates chronic or acute kidney disease.

The quantitative level of urea in the blood depends on three factors:

- indicative level of amino acids in the body of protein metabolism;
- the state of the liver - the ability to convert ammonia into urea;
- kidney condition - the ability to remove urea from the body.

In our studies, the serum urea content was within normal limits. The average value of the urea of lactating goats of the Saanen breed was 5.79±1.00, against 4.61±1.03 mmol / l of local goats of peers. A significant difference in this indicator in the studies has not been established.

Since milk minerals are synthesized in the mammary gland from the blood of lactating animals, it becomes advisable to study them. Of all the minerals, calcium and phosphorus are of paramount importance in the body of animals.

Calcium is part of the bones, participates in blood clotting, supports the excitability of nerves and muscle tissue, increases myocardial tone, activates enzymes. In the blood serum, total calcium is in the form of ultrofiltration and colloidal fractions. In the body of animals, protein-bound (calcium proteins, complexones), ion exchange and acid-soluble calcium are distinguished. Under the influence of hormones of the parathyroid and thyroid glands and vitamin D in the body of animals, calcium metabolism is regulated.

The calcium content in the blood serum of lactating goats and local goats ranged from 2.46 mmol / l to 2.56 mmol / l and corresponded to the physiological norm. However, it should be noted that the value of this indicator in Saanen animals was slightly higher by 0.10 mmol / l or 4.07%, but the difference is not significant.

CONCLUSION

Phosphorus is involved in the regulation of acid-base balance, as well as in carbohydrate, fat and protein metabolism. The main amount of phosphorus is found in bone, muscle and nervous tissue, blood. It is part of the phosphate buffer of blood, ATP, ADP.

In our studies, the serum phosphorus content of Saanen goats was 1.85±0.09 mmol / l against 1.91±0.27 mmol / l, which corresponds to the physiological norm. There is no significant difference between the compared groups of animals.

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